

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 03/14255

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 C30B11/00 C30B29/52

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C30B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                             | Relevant to claim No. |
|------------|--|-----------------------|
| X          | US 4 482 422 A (JASTRZEBSKI LUBOMIR L ET AL) 13 November 1984 (1984-11-13)<br>column 3 - column 4; figures 2-4 | 9                     |
| A          | US 4 705 203 A (MCCOMAS CHARLES C ET AL) 10 November 1987 (1987-11-10)<br>column 4, lines 1-9; claims 1,2      | 1,2,4,7,8             |
| A          | US 4 289 570 A (TERKELSEN BRUCE E) 15 September 1981 (1981-09-15)<br>column 2, line 17 - column 3, line 42     | 1,3                   |
| A          | US 5 756 225 A (MORRIS ROBERT C ET AL) 26 May 1998 (1998-05-26)<br>the whole document                          | 1,5,8                 |
|            | -----<br>-/-   |                       |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the International filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the International filing date but later than the priority date claimed

\*T\* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

1 June 2004

Date of mailing of the international search report

09/06/2004

Name and mailing address of the ISA  
 European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Cook, S

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/14255

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |  |                       |
|--|--|-----------------------|
| Category *   | Citation of document, with indication, where appropriate, of the relevant passages                                 | Relevant to claim No. |
| A  | US 5 573 862 A (GUALTIERI DEVLIN M ET AL)<br>12 November 1996 (1996-11-12)<br>column 9, line 35 - line 47<br>----- | 1,5,8                 |
| A  | EP 1 001 055 A (ABB RESEARCH LTD)<br>17 May 2000 (2000-05-17)<br>the whole document<br>-----                       | 1                     |
| A  | US 6 024 792 A (KURZ WILFRIED ET AL)<br>15 February 2000 (2000-02-15)<br>cited in the application<br>-----         |                       |
| A  | EP 0 892 090 A (SULZER INNOTECH AG)<br>20 January 1999 (1999-01-20)<br>cited in the application<br>-----           |                       |
| A  | US 5 213 907 A (CABALLERO LUIS X)<br>25 May 1993 (1993-05-25)<br>column 6<br>-----                                 |                       |
| A  | US 5 673 745 A (JACKSON MELVIN ROBERT ET AL)<br>7 October 1997 (1997-10-07)<br>-----                               |                       |
| A  | EP 1 065 026 A (ALSTOM POWER SCHWEIZ AG)<br>3 January 2001 (2001-01-03)<br>-----                                   |                       |
| A  | EP 1 258 312 A (UNITED TECHNOLOGIES CORP)<br>20 November 2002 (2002-11-20)<br>-----                                |                       |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/14255

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s)   | Publication<br>date  |
|---|---|---------------------|--|--|
| US 4482422                                | A | 13-11-1984          | DE 3305985 A1<br>FR 2522339 A1<br>GB 2116067 A ,B<br>IT 1167618 B<br>JP 1912611 C<br>JP 6024184 B<br>JP 58159322 A<br>SE 8301028 A   | 08-09-1983<br>02-09-1983<br>21-09-1983<br>13-05-1987<br>09-03-1995<br>30-03-1994<br>21-09-1983<br>27-08-1983   |
| US 4705203                                | A | 10-11-1987          | NONE   |  |
| US 4289570                                | A | 15-09-1981          | BE 880401 A1<br>BR 7908121 A<br>CA 1142840 A1<br>CH 651071 A5<br>DE 2949532 A1<br>DK 529379 A ,B<br>FR 2444091 A1<br>GB 2037635 A ,B<br>IL 58881 A<br>IT 1127730 B<br>JP 1511989 C<br>JP 55080800 A<br>JP 63035349 B<br>NL 7908786 A<br>NO 794027 A ,B,<br>SE 440515 B<br>SE 7910138 A | 01-04-1980<br>29-07-1980<br>15-03-1983<br>30-08-1985<br>26-06-1980<br>14-06-1980<br>11-07-1980<br>16-07-1980<br>29-02-1984<br>21-05-1986<br>09-08-1989<br>18-06-1980<br>14-07-1988<br>17-06-1980<br>16-06-1980<br>05-08-1985<br>14-06-1980 |
| US 5756225                                | A | 26-05-1998          | US 5573862 A   | 12-11-1996   |
| US 5573862                                | A | 12-11-1996          | US 5756225 A   | 26-05-1998   |
| EP 1001055                                | A | 17-05-2000          | EP 1001055 A1<br>DE 69821945 D1<br>US 6277500 B1   | 17-05-2000<br>01-04-2004<br>21-08-2001   |
| US 6024792                                | A | 15-02-2000          | EP 0861927 A1<br>CA 2230323 A1<br>EP 0892090 A1  | 02-09-1998<br>24-08-1998<br>20-01-1999   |
| EP 0892090                                | A | 20-01-1999          | EP 0861927 A1<br>EP 0892090 A1<br>CA 2230323 A1<br>US 6024792 A  | 02-09-1998<br>20-01-1999<br>24-08-1998<br>15-02-2000   |
| US 5213907                                | A | 25-05-1993          | AU 647345 B2<br>AU 8914791 A<br>CA 2094403 A1<br>DE 556341 T1<br>EP 0556341 A1<br>ES 2043579 T1<br>GR 93300128 T1<br>JP 6504583 T<br>JP 3324061 B2<br>MX 9101502 A1<br>US 5314608 A<br>WO 9205952 A1   | 17-03-1994<br>28-04-1992<br>10-04-1992<br>03-02-1994<br>25-08-1993<br>01-01-1994<br>30-12-1993<br>26-05-1994<br>17-09-2002<br>01-07-1992<br>24-05-1994<br>16-04-1992   |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/14255

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---|---------------------|----------------------------|---------------------|
| US 5213907                                | A |                     | US 5431804 A               | 11-07-1995          |
| US 5673745                                | A | 07-10-1997          | DE 69703952 D1             | 01-03-2001          |
|   |   |                     | DE 69703952 T2             | 09-08-2001          |
|   |   |                     | EP 0815992 A1              | 07-01-1998          |
|   |   |                     | JP 10085922 A              | 07-04-1998          |
|   |   |                     | SG 50855 A1                | 20-07-1998          |
| EP 1065026                                | A | 03-01-2001          | EP 1065026 A1              | 03-01-2001          |
|   |   |                     | US 6405435 B1              | 18-06-2002          |
| EP 1258312                                | A | 20-11-2002          | US 2002185198 A1           | 12-12-2002          |
|   |   |                     | CN 1401458 A               | 12-03-2003          |
|   |   |                     | EP 1258312 A2              | 20-11-2002          |
|   |   |                     | JP 2003048065 A            | 18-02-2003          |
|   |   |                     | SG 99968 A1                | 27-11-2003          |